

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Status of Claims:

No claims are currently being cancelled.

Claims 1, 6 and 7 are currently being amended.

Claims 8-10 are currently being added.

This amendment and reply amends and adds claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claims remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending and adding the claims as set forth above, claims 1-10 are now pending in this application.

Request for Approval of Formal Drawings Submitted with Patent Application:

Applicant respectfully requests explicit approval by the PTO of the formal drawings submitted with the patent application on September 26, 2003.

Claim Rejections – 35 U.S.C. § 112, 2nd Paragraph:

In the Office Action, claims 6 and 7 were rejected under 35 U.S.C. § 112, 2nd paragraph, as being indefinite, for the reasons set forth on pages 2 and 3 of the Office Action. By way of this amendment and reply, claim 6 has been amended to recite “electric power ~~converter~~ converting means”, in order to address the indefiniteness issue raised in the Office Action for that claim. Also, claim 7 has been amended to explicitly recite what is being controlled.

Accordingly, presently pending claims 6 and 7 now fully conform to 35 U.S.C. § 112, 2nd paragraph.

Claim Rejections – Prior Art:

In the Office Action, claims 1-5 and 7 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,580,977 to Ding et al.; and claim 6 was rejected under 35

U.S.C. § 103(a) as being unpatentable over Ding et al. These rejections are traversed with respect to presently pending claims 1-7, for at least the reasons given below.

In particular, Ding does not disclose, teach or suggest an electric power converter that is controlled under two control modes during start-up of a fuel cell stack:

- (F1) A first control mode that a voltage level of an electric power to be supplied from a secondary battery to a load lies at a value equal to or greater than an open voltage level of the fuel cell stack; and
- (F2) A second control mode that an electric power level supplied to the load through the electric power converter is detected for permitting the electric power to be supplied to the load from the secondary battery at an electric power level less than a detected electric power level.

Regarding the first control mode described above, Ding patent describes that the level of power from a battery [SOCb2] may be increased up to 95% to assist FCS during start-up (see column 5, lines 29-42 and column 6, lines 8-18 of Ding). Therefore, if the battery is supplying 95% of the electric power, the FCS resultantly supplies the remaining 5% during start-up.

- (P2) Regarding the second control mode, Ding describes that during normal operation, the FCS operates without any supplemental assistance from the battery, and thus the battery is supplying at an electric power less than the detected power level (which is met in full by the FCS) (see column 7, lines 18-21 and lines 30-34).
- (P3) Regarding the claimed controller, Ding describes that an electric power is controlled insofar as it assures proper power and power distribution as required for operation by way of an inverter 58.

Turning now to the specific rejections raised in the Office Action, it is believed that the Office Action mischaracterizes Ding regarding the first point (P1) because, in Ding, the word “SOCb” is defined not as the “power level” of the battery but rather it is defined as the “charge level” of the battery. In addition, as is readily understood from Figures 3 and 4 of the present drawings, the fuel cell stack 1 does not supply any electric power to the load 6 (or the

air compressor 3) under the first operation mode because the voltage of the secondary battery 7 is equal to or greater than the open voltage level (V0) of the fuel cell stack 1.

Secondly, regarding the second point (P2), the Office Action describes the operations of the SFC during the “normal” operation. However the operations of the controller of the presently claimed invention occur during the “start-up” of the SFC (which is prior to a “normal” operation mode).

Lastly, it is noted that the statements made in the Office Action regarding the third point (P3) fall well short of the specific features recited in presently pending independent claims 1, 6 and 7.

New Claims:

New claims 8-10 have been added to recite additional features of the present invention that are believed to provide a separate basis of patentability for those claims. Support for new claim 8 may be found, for example, on page 14, line 33 to page 15, line 2 of the specification. Support for new claim 9 may be found, for example, on page 16, lines 4-8 of the specification. Support for new claim 10 may be found, for example, on page 19, lines 1-6 of the specification.

Conclusion:

Accordingly, since all of the issues raised in the Office Action have been addressed in this Amendment and Reply, Applicant believes that the present application is now in condition for allowance, and an early indication of allowance is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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